

## **WORK ORDER MANAGEMENT SYSTEM**

This invention relates to a work order management system which is easy to employ, operate and administer. It is a web server software owned and controlled by the service provider that allows clients to have a work order management system without having to have their own internal information technology system. The application is designed to run on servers controlled by the service provider and gives the customers the power and flexibility of a full power work order management system via the Internet.

The system provides clients with a web-based tool for managing their work orders, resources and communicates status change to their clients. The vendors set up their customers to permit access to their web based work order system. Each vendor is separate from any other Vendor and no vendor can see any other vendor's work order system or information. The front of screen experience for the customers of a vendor is customized to appear to the customers as if they were accessing an internal work order management site within the vendor's organization.

The customer site is accessible from any web browser and is protected by a password and username login. The operation is extremely simple and quick. Once a work order is entered into the system any change in status generates an e-mail to the requester or other designated recipient informing them of the status of the work order, whether it be completed, closed, changed or just assigned, which information they can use for their own planning or information purposes. Customers can easily check what is happening from any browser they have available.

## **Background**

Henceforth there has been no on line management system for work orders for the small to medium sized company which has to interact with its customers yet cannot afford the very expensive total systems being presently marketed today. The instant invention provides the control and management capability to that company without the huge cost involved by using its own servers to provide online capability in managing customer accounts and simultaneously gives the customer a way to interact with the vendor. The vendor can additionally adjust and customize what capabilities each and every customer has in the system depending on the customer and its needs. The

vendor at present is faced with ordering a very expensive IT system well outside of most vendor's budgets or doing without. There is no existing system which allows the vendor to keep track of customers work orders, modify them, check them for progress and against resource and labor allocations, and match them with payments by the customer. No system allows selected employees of the customer and the vendor to access a system selectively which is cheap and operated by an outside operator owner by putting the system on line. The instant system remedies all of these shortcomings with existing systems lack of systems.

### **General Description of the Invention**

The present invention is an on-line work order management system which allows both the vendor and customer to interact on several levels. The system, run by the servers of the owner of the system, provides the customers with a login capability, a user profile and the ability to enter work orders and to check on their progress. The customer is provided with the ability to see what equipment is being used on its work order, can review previous work orders and present work orders, be notified of action taken by the vendor and to add information to the work order.

The system can handle a large number of vendors each with its own group of customers. Any customer can be providing work orders to two or more vendors on the same system and the system operator provides each customer with a separate ID for each vendor it interacts with. Each vendor, likewise, has a separate ID or URL assigned by the system operator. The vendor can check invoices from the operator, run four different types of reports, can modify information about itself visible to the customers, add and delete certain of its employees for access to the system and select which portions of the system each of those employees has access to, create customer accounts, ascertain what equipment is available for each work order and what labor, whether in-house or contract, schedule preventive maintenance on each piece of equipment, see the status of all work orders and modify them if need be and review work order history.

The vendor can modify the user ( customer ) screens and create new ones. It can review the names and identification of each piece of equipment it has available for certain work orders and assign them while also setting up a maintenance timetable, review the record of customer payments, edit comments on each customer profile and create new work orders. It can search the orders for a key word in each text, establish unit and total cost of materials associated with each work order, establish urgency of completion of the work order, and cause e-mail to be sent to the customer employee advising them of changes, progress, etc.

Accordingly it is an object of this invention of this invention to provide an on-line work order management system for vendors and customers,

It is another object of this invention to provide a work order system which provides a low cost alternative to expensive IT systems for small and medium sized vendors and *customers*,

It is yet another object of this invention to provide a private work order system for a plurality of vendors on the same on-line system,

Still another object of this invention is to provide a work order management system where the *customers* can enter the orders themselves and which is accessible from any web browser,

A further object of this invention is to provide a work order management system for vendors who can select which of its employees have access to selected portions of the system for various purposes,

A still further object of this invention is to provide a work order management system for vendors who can update company information, establish customer accounts and add employees and/or equipment to each customer work order, and to schedule preventive maintenance on its equipment.

Another object is to provide a work management system for Vendors or companies to manage internal work orders allowing them to manage their business

Still another object is to provide for the automatic generation of preventive maintenance with e-mail notification of work due.

Yet another object of this invention is to provide an on-line work order management systems for vendors which allows customers to logon for entering work orders and which allows the vendor to modify and add to the work order at the direct request of a customer employee.

Furthermore, it is another object of this invention to provide a unique on-line work order management system for generating reports to the vendor and invoice reports to the system operator.

These and other objects of the invention will become apparent when reference is had to the accompanying drawings in which;

Figure 1 is a customer login screen,

Figure 2 is a table accompanying Figure 1,

Figure 3 is the customer main menu screen,

Figure 4 is a table accompanying Figure 3,

Figure 5 is a customer user profile screen,

Figure 6 is customer change profile screen,

Figure 7 is a table accompanying Figure 6,

Figure 8 is a customer change profile information screen,

- Figure 9 is customer work order screen,
- Figure 10 is a customer create a work order screen,
- Figure 11 is a table accompanying Figure 10,
- Figure 12 is a customer system information on main menu screen,
- Figure 13 is a customer access work order screen,
- Figure 14 is customer open work order only screen,
- Figure 15 is a table accompanying Figure 14,
- Figure 16 is a customer open and closed work order screen,
- Figure 17 is a customer work order details screen,
- Figure 18 is a table accompanying Figure 17,
- Figure 19 is a vendor login screen,
- Figure 20 is a table accompanying Figure 19,
- Figure 21 is a main menu screen for the vendor,
- Figure 22 is a table accompanying Figure 21,
- Figure 23 is a vendor work with corporate information screen,
- Figure 24 is a vendor corporate information screen,
- Figure 25 is a table accompanying Figure 24,
- Figure 26 is a vendor work with employee table,
- Figure 27 is a vendor employee screen,

Figure 28 is a table accompanying Figure 27,

Figure 29 is a vendor add new team member screen,

Figure 30 is a table accompanying Figure 29,

Figure 31 is a vendor modify employee screen,

Figure 32 is a table accompanying Figure 31,

Figure 33 is a vendor work with employees screen,

Figure 34 is a vendor employee screen,

Figure 35 is a table accompanying Figure 34,

Figure 36 is vendor add new employee screen,

Figure 37 is a table accompanying Figure 36,

Figure 38 is a vendor modify employee screen,

Figure 39 is a table accompanying Figure 38,

Figure 40 is a vendor work with customer logon screen,

Figure 41 is a customer selection screen,

Figure 42 is a table associated with Figure 41,

Figure 43 is a vendor add new company screen,

Figure 44 is a table accompanying Figure 43,

Figure 45 is a vendor modify company information screen,

Figure 46 is a table accompanying Figure 45,

Figure 47 is a vendor work with accounts screen,

Figure 48 is a table accompanying Figure 47,

Figure 49 is a vendor login statistics screen,

Figure 50 is a table accompanying Figure 49,

Figure 51 is a vendor user log screen,

Figure 52 is a table accompanying Figure 51,

Figure 53 is vendor modify user screen,

Figure 54 is a table accompanying Figure 53,

Figure 55 is a vendor create new user screen,

Figure 56 is a table accompanying Figure 55,

Figure 57 is a vendor work with equipment screen

Figure 58 is a vendor equipment screen,

Figure 59 is a table accompanying Figure 58,

Figure 60 is a vendor add new equipment screen,

Figure 61 is a table accompanying Figure 60,

Figure 62 is a vendor modify equipment screen.

Figure 63 is a table accompanying Figure 62,

Figure 64 is a vendor work with equipment/maintenance screen,

Figure 65 is a table accompanying Figure 64,

Figure 66 is a vendor add new equipment screen,

Figure 67 is a table accompanying Figure 66,

Figure 68 is vendor modify equipment maintenance screen,

Figure 69 is a table accompanying Figure 68,

Figure 70 is vendor customer payments screen,

Figure 71 is a vendor customer payment screen,

Figure 72 is a table accompanying Figure 71,

Figure 73 is a vendor work order details screen.

Figure 74 is a table accompanying Figure 73,

Figure 75 is a vendor edit comments screen.

Figure 76 is a table accompanying Figure 75.

Figure 77 is a vendor payment detail screen.

Figure 78 is a table accompanying Figure 77.

Figure 79 is a vendor create new work order screen.

Figure 80 is a vendor customer selection screen

Figure 81 is a table accompanying Figure 80.

Figure 82 is a vendor blank form screen

Figure 83 is a table accompanying Figure

Figure 84 is a vendor completed form screen.

Figure 8.5 is a vendor action taken at user request.

Figure 86 is a vendor access work order screen.

- Figure 87 is a work order screen for vendors,
- Figure 88 is a table accompanying Figure 87,
- Figure 89 is a vendor open and closed work order screen,
- Figure 90 is a table accompanying Figure 89,
- Figure 91 is a vendor advanced screen,
- Figure 92 is a table accompanying Figure 91,
- Figure 93 is a vendor advanced search results screen,
- Figure 94 is a vendor work order screen,
- Figure 95 is a table accompanying Figure 94,
- Figure 96 is a vendor work with resources screen,
- Figure 97 is a table accompanying Figure 96,
- Figure 98 is a vendor work order resource detail screen,
- Figure 99 is a vendor work order resource detail screen,
- Figure 100 is a vendor work order resource recalculated screen,
- Figure 101 is a vendor updated work order detail screen,
- Figure 102 is vendor work order modify detail screen,
- Figure 103 is a table accompanying Figure 102,
- Figure 104 is vendor reports screen,
- Figure 105 is a vendor report menu screen,

Figure 106 is a table accompanying Figure 105,  
Figure 107 is a vendor report period screen,  
Figure 108 is a table accompanying Figure 107,  
Figure 109 is a vendor resource allocation by employee screen,  
Figure 110 is a table accompanying Figure 109,  
Figure 111 is a vendor employee assigned hours screen,  
Figure 112 is a table accompanying Figure 111,  
Figure 113 is a vendor sample report screen,  
Figure 114 is a table accompanying Figure 113,  
Figure 115 is a vendor sample report screen,  
Figure 116 is a table accompanying Figure 115,  
Figure 117 is an invoice screen for the operator of the system,  
Figure 118 is an operator invoice history screen,  
Figure 119 is a table accompanying Figure 118,  
Figure 120 is an operator invoice screen, and  
Figure 121 is a table accompanying Figure 120

## DETAILED DESCRIPTION OF CUSTOMER SITE OF THE SYSTEM

### **Customer Login**

Referring now to Figure 1 there is shown the login screen. This screen is used for the vendor's customers. Each screen is customized to display the vendor's name, and each customer is provided a URL icon ( a URL address ) that automatically takes him or her to the login in screen for their vendor. A customer may submit work orders to several vendors who use the instant system. Each vendor, however, provides that customer with a separate URL icon for the vendor's own login page.

Figure 2 shows the vendor's name, followed by the standard text "Work Order Management System. The vendor's name is set within the vendor's site, in the Corporate Information screen. As noted, the username is the login name ( the customer's e-mail address ) assigned to the vendor's customer. A customer must have a valid username and password to log into the Work Order Management System. The customer enters his password as noted on the screen on Figure 1. The Enter Button is clicked using the mouse to submit the entered username and password combination to the system for recognition and authentication for access. If the username and password authenticates, the customer will be logged into the vendor's Work Order Management System. If the user name and password do not coincide, or if the system does not recognize the user name, the user is returned to the Login screen and all fields cleared.

## **Customer Main Menu**

Figure 3 shows the Main Menu Screen that the customer sees once they have been authenticated and logged in. Key components of the screen are described in Figure 4. Each of the four main menu items is described below and each of the selections is explained. The title displays the vendor's name, followed by the standard test "Work Order Management System". The vendor's name is set within the vendor's site in the Corporate Information screen. The Session Name displays the user name of the user presently logged in which is displayed on all screens. The user then employs the Create New Work Order Selection link which takes him to the form for submitting a new work order. By employing Access Work Order Selection the user is linked to the list of previously submitted work orders ( if any ) which is used to check the status of already submitted work orders. In using Log Off Selection, the user links off the system which takes him back to the login screen. The Change Profile Information Selection link takes the user to a form that will allow them to change the information about themselves.

## **Change Profile Information**

Figure 5 shows the user profile screen which is used to look at a profile as well as to enter changes such as contact information, e-mail addresses and to reset the passwords.

Figure 6 shows the Change Profile screen which allows users to change user information. The information, noted in Figure 7, includes such information as e-mail address, First and last names, phone and fax numbers, new passwords and confirmation, etc. which the user enters by hitting the update button or canceling it with the cancel button.

Figure 8 shows the Change Profile Information screen. The system provides on-screen feedback on user initiated actions. In such a case, the screen display shows that the user profile was updated, at the user's request. The System information indicates when action was taken or not taken at the user's request.

### **Create New Work Order**

Figure 9 shows the Create New Work Order Screen by which customers create and submit work orders from the Create New Work Order Selection.

Figure 10 shows the Create New Work Order Screen which is brought by pushing Create New Work Order on the screen of Figure 9. This is where the initial work order is created and submitted. Each field is discussed in Figure 11. Once the form is

completed clicking the submit button will submit the work order, clicking the Return button will return the user to the Main Menu without submitting the work order. As noted, The Reported Equipment pull down list displays all the equipment that the vendor has identified as available for having a work order created or submitted. Other equipment may be present, but if the vendor has not identified it as a work order item, a work order may not have to be created or submitted for the equipment. If a customer needs to other equipment added to the list he may contact the vendor. The Request is a text description of the work order request which usually describes any problems or information that will assist in completing the work order. The P. O. number is the purchase order number from the customer which is necessary to obtain a work order submission. The customer should put his initials in this box if it is a verbal purchase order. The Requested Completion Date is entered here if necessary. The W.O. type is a drop down list used to indicate the type of work order being submitted. The options are Request and Repair. The second field drop down is used to indicate the nature of the work order and the options are Normal and Emergency which are self-explanatory. The name of the person submitting the order is entered together with phone number, e-mail information, person to notify and submitted.

Figure 12 shows the Create New Work Order Screen where screen action is not

taken at the user request. The system notifies the user of actions taken or not taken using an on-screen message. The screen indicates that the work order was not submitted. If it had been submitted the system would have displayed the work order number.

### **Access Work Orders**

Figure 13 shows the Access Work Order Screen with the selection to view previously submitted work orders.

Figure 14 shows the Access Work Order Screen showing open work orders only. This screen displays only the open work orders which is indicated by the Open/Closed Work Order View Selector above the upper right hand corner of the table. The user can use this screen to review the status of open work orders. From this screen the user can also select to view a submitted work order. While viewing the work order, the user has the option to cancel the work order. Fig 15 identifies the components of the screen on Figure 14. If the vendor has indicated that you are to see a past due indication on past due work orders, all past due invoices will appear on the listing regardless of whether or not the screen is set to show closed work orders.

The List Sort Information in Figure 15 is an information line. The table of work

orders may be sorted in any number of ways. Any underlined column can be used to sort the table. The Open/Closed Work Order View Selector will only include open work orders as shown or may be clicked to show both open and closed work orders. Figure 16 shows closed work orders. The vendor may hide this option from the customer if the Allow Access to History is not checked in the customer account profile screen on the vendor side. The work order, description of work, status, due date and notes are all noted. The WO Navigation indicates how many pages of work are available for display and the user may change the page to be viewed. The Information and Navigation Bar, left side, is used to indicate how many items are in the list of work orders and how many are currently viewed on-screen. The right side contains the link to the Main Menu.

Figure 16 shows the Access Work Order Screen indicating Open and Closed Work Orders. The screen is similar to Figure 14 except that this screen shows both open and closed work orders. A "2" following the "1" would indicate that more work orders are available for viewing. If the vendor has indicated that the customer is to see a past due indication on past due work orders all past due invoices will appear on the listing regardless of whether or not the screen is set to show closed work orders.

Figures 17 and 18 show the Access Work Order Work Details Screen which is opened when the user selects a work order number. This screen is a view-only screen

and displays the information entered when the work order was first created plus any other information added after the initial submission. Most of the fields on this screen are the same as previously discussed or are self explanatory. The new information listed include Assigned To, which indicates the responsible party, the Status Detail, containing added notes, the Navigation Bar, which lists options and the Cancel.

This concludes the discussion of the customer or user screens.

## DETAILED DISCUSSION OF VENDOR SITE OF THE SYSTEM

Again, the Work Order Management System is an application service provider program that allows clients ( vendors ) to have their own work order management system without having to have their own internal IT organizations. The application runs on the owner/installer servers and provides the vendors the power and flexibility of a full power work order management system network by using the internet.

### Login

Figures 19 and 20 show the login screen for the vendors and the table of notations, respectively. Each screen is customized to display the vendor's name and each vendor is provided with a URL icon ( a URL address ) that automatically takes him

or her to the login screen for their Work Order Management System. Each vendor will provide their customers with a URL icon for the vendor's login page. Figure 20 is a table outlining the major screen components. The Username and Password age, again, are peculiar to the vendor using the screen and it must be valid to enter the system.

## Main Menu

Figures 21 and 22 show the Main Menu Screen and the selections thereon, respectively. This is the screen that the customer will see once they have been authenticated and logged in. Key components of the screen are described in Figure 22.

Each of the 11 main menu items is described there. It should be noted that which option on the screen in Figure 21 you can operate is determined by your access privileges.

Everyone can see Access Work Orders and Log Off System but all other options are controlled by settings in the "Work With Employee Logons" sections. In the title the vendor's name is set within the vendor's site, in the work with Corporate Information Screen. The name of the logged on user appears in the Session Name display and the Create New Work Order allows the vendor to create a work order on behalf of a customer. The Work with Customer Logons link allows the vendor to create customer accounts and the Work with Equipment link allows the vendor to determine what equipment is available and what the customer can select from the drop down menus. An

added bonus is that it allows the vendor to schedule preventive maintenance on a regular schedule. The Work with Employee Table allows the vendor to work with vendor employees who will be involved. The vendor can also access and modify vendor employee accounts by Work With Employee Logons and review customer payments by Customer Payments. The vendor can also modify information about itself and to run reports from a report menu. A view of the owner/installer invoices is also available on View E-woms .com Invoice History.

### **Work with Corporate Information**

Figure 23 shows the Work With Corporate Information Screen where the vendor information is posted. This is what the customer sees when they log on to submit a work order. Figure 24 shows the Corporate Information Screen with the information listed and is where the customer and web site information is drawn from. The logged in user name is displayed in the Session Name and the Save saves the information to the System. The contact information such as name, phone, fax, employee key contact, and web home page is displayed. It may be that the customer can auto register on the screen at this time.

### **Work with Employee Table**

Figure 26 shows the Work With Employee Table which has the capability of entering the vendor employees into the system. These individuals are usually those who will be performing the work to complete the work order or supervisors or managers who are assigning or reviewing the work assignments. Employees are identified here and may be logged on.

Figure 27 shows the Work With Employee Table for the system. Table 28 shows the employee screen information by which the vendor can add new members, return to Main Menu, check employee numbers and name and check other items. Figure 29 shows the screen for adding a New Team Member by which the vendor authorizes its employees to have access to the system. Employee Access Privileges are not set here, on upon the account creation. Access Privileges are set in “Work With Employee Logons”. As shown in Table 30, the vendor can add new employees by a certain identification such a name or number as well as the hourly rate and hours per day available for the work.

Figure 31 shows the Work With Employee Table with the Modify Employee Screen which allows the vendor to modify information about an existing employee. It allows for an employee ID which is unique to that employee and cannot be changed once it has been entered.

## Work with Employee Logons

Figure 33 shows the Work With Employee Logons where employees are given logon permission to use the Vendors area in the system by the vendor. Employee privileges and access rights are assigned based on the employees job and the vendor's policy about access to information. Permissions are granted by the vendor and the owner operator of the system has no responsibility in this regard.

Figure 34 shows the Employee Screen for employees who have been given logon permission by the vendor. The screen can be sorted by clicking on the column headings. Additional clicks on the column heading will reverse the sort from ascending to descending, etc. The Table 35 shows the various selections which are self-explanatory.

Figure 36 and Table 37 show the function of adding a New Employee Screen. This is where the vendor assigns new rights and permission to employees. Table 37 shows the different instructions which allow different levels of access to information to the employee such as Allow This User to Work With Customer Login Accounts or Allow this User to Access Customer Payments. These different access authorizations have to do with the functions the employees are carrying out in the vendor company, such as

bookkeeping, scheduling equipment, interfacing with the customer to change work orders or to work with other employees on their work schedules. The employee may also create a work order for the customer who may be unable to create the work order himself from the customer web site for some reason. As stated, the Payment Due function is important and should be set up during the user setup as all work orders may show up as past due if added later. Done properly, this allows vendor to record payments against work orders to insure tracking.

Figure 38 shows the Modify Employee Screen for the Work with Employee Logons where the vendor modifies logon names and specific rights and permissions to employees. Table 39 shows the various options open to vendor in this regard where, after identifying the employee, can allow the user to view the e-Woms Invoice History ( billing of system owner and operator ), all the user to work with corporate information including modifying it, allow the user to work with work order parts and labor and other possibilities. This is established during user set so that the records remain coherent.

#### Work with Customer Logon

Figure 40 shows the screen for working with the Customer Logon which allows the vendor to create customers, modify customer information, add and modify customer users and examine logon records for customer users. Figure 41 and Table 42 show the

customer selection screen for this portion of the operation of the system. Selecting Work with Customer Logon brings up this screen. This is where the vendor creates and identifies customers, assigns the Company name that appears on the customer screen when the customer logs on and works with the customer user information. Table 42 shows the options available with this screen. Note that the Company name is assigned by the owner of the system, Wombat, Inc., in this case when the vendor creates a new customer. It is used to identify the customer company in the system database and is never seen by the customer. However, the customer company name is assigned by the vendor when it sets up the customer account. This is the name seen at the top of the customer screens when they log on. The Work with Accounts link allows the vendor to look at the Customer Account screens where they can review or modify account information for individual users authorized by the customer.

Figure 43 show the Add New Company Screen where the vendor enters the customer information. The Company Number shows “NEW” as no number has been assigned as yet to the customer. Pressing submit assigns a number to the customer. Other identifying information such as names, addresses, contact person, and payment terms are all identified on this screen as shown in Table 44.

Figure 45 shows the Modify Company Information Screen which, by clicking on the Company Number will open the Change Company information screen. Here the vendor can modify the Customer Company information for an existing Customer, or the vendor can delete the Customer from the database of vendor's customers. Table 46 shows the various information and options available with this screen. Submit enters the customer information to the system to be entered as a customer for the vendor. The Company Name and Payment Terms can also be entered and the Company Name appears on the Customer Work Order in the Application Title when they are entering a work order.

Figure 47 shows the Work with Accounts Screen for the system which brings the user to a list of user accounts. As noted in Table 48 the link refreshes the Account Menu page so any changes show up. Also available are the Main Menu and the Work with Company Menu as well as the Submit Changes and Active Checkbox options. The Submit Changes submits the data on the screen to the database and the Active Checkbox selects whether the user account is active or inactive. This selection can also be used to render an account temporarily inactive. The user is assigned a number by Wombat or the operator of the system and clicking for user numbers brings up a history of logins for that user.

Figure 49 shows the Login Statistics Screen which displays the most recent login for each of the customer users. Clicking on any header will sort the list according to the accompanying column. The sort will alternate between any ascending and descending sort. One clicks on “Return to Previous Page” to exit this screen. Table 50 shows the explanation of the options.

Figure 51 shows the User Log Screen for Working with Customer Logon and clicking on a user number will display a login history for that user. One clicks on “Return to Previous Page” to exit. Figure 52 shows the table of instructions.

Figure 53 shows the Modify User Screen for the Work with Customer Logon. Figure 54 shows the table of options for the screen. Note that the Delete button allows the vendor to delete a customer user account and Save allows saving of the modified customer account information. A check in Allow Access to History allows the user to access the historical work orders and a check in Can Cancel Work Orders allows user to cancel work orders. The Show Late Payments box shows the late payments by customer and a New Password option is also provided.

Figure 55 shows the Create New User Screen for Work with Customer Logon and

this is where the vendor creates a new customer user. Figure 56 shows the table of options for this screen which are self-explanatory.

## **Work with Equipment/Equipment PM**

Figure 57 shows the Work With Equipment/Equipment PM ( periodic maintenance ) screen which allows the vendor to identify the equipment they work with, \ schedule periodic maintenance for that equipment and to limit what a customer can see in the pull down menu displayed on the work order screen. Figure 58 shows the Equipment Screen for the Work with Equipment/EquipmentPM which displays the equipment the vendor has entered into their equipment database list. The list can be sorted by Equipment Name, whether or not the equipment appears in the work order pull-down menu or description. Sorting this list is done by clicking on the name of the column. Repeated clicks reverse the sort. Figure 59 shows the Table of options available on the screen including a description of the equipment, its name, whether or not the equipment shows up in the drop down menu and to schedule preventive maintenance on the equipment.

Figure 60 show the Add New Equipment Screen for the Work with Equipment/Equipment PM where the vendor enters new information on any new

equipment added to the database. Figure 61 showing the table is self-explanatory.

Figure 62 shows the Modify Equipment Screen for the Work with Equipment/Equipment PM where the vendor accesses this by clicking on the name in the first column of any equipment on the list. This is where the Vendor modifies the information on any equipment already entered into databases. Figure 63 shows the table with the options such as Ref. No. which gives each piece of equipment a unique reference number. The equipment can appear in the customer drop down menu on the work order entry screen if the box is checked. The preventive maintenance person's e-mail address is also given.

Figure 64 shows the Equipment PM Schedule Screen which is accessed by clicking the "Equipment PM" link next to an item on the Equipment Screen by the vendor. The vendor can see what Preventive Maintenance orders are scheduled for the equipment as well as the scheduled period and when the item was last submitted for scheduled preventive maintenance work. Figure 65 shows the table of options most of which are self-explanatory. The Add New Pm allows the vendor to enter a new schedule Preventive Maintenance order to the item of equipment.

Figure 66 shows the Add New Equipment Screen for the Work With Equipment/Equipment PM where the vendor enters information on any new equipment added to the database. Figure 67 shows the Table with the screen options such as Save which enters the data to the operator for entry into the vendor equipment list as well as information concerning the equipment itself. The Cycle Time and Cycle Type concern the frequency of work orders and allows the usage planning of the equipment.

Figure 68 shows the Modify Equipment PM Schedule Screen for the Work With Equipment/Equipment PM where the vendor modifies the scheduled PM request orders. Figure 69 shows the table listing the options available which include showings of preventive maintenance cycles.

### **Customer Payments**

Figure 70 shows the Customer Payments Screen where the vendor can review the work order and payment status of the work orders submitted by the customer. Figure 71 shows an example of a Customer Payment Screen of Customer Payments where the information can be sorted by clicking on the column headers. Additional clicks on a header reverses the sort from ascending or descending. The screen shown has been

sorted by Status, all closed work orders are at the top of the page. Figure 72 shows the table of options available including WO# which allows the vendor to review or modify the work order, Closed Date showing when the work order was completed, Page Information listing how many work orders there are and which ones are being viewed. Using the navigation line the vendor can move back and forth through the list to review any selected work order in the database. The options also include Show Only Past Due and Text in Description, the latter of which allows the vendor to access any work order with a particular word.

Figure 73 shows the Work Order Details Screen of Customer Payments which is the work order selected on the screen in Figure 71. Figure 74 is a table listing the options including Reported Equipment, which is a pull down list that displays all the equipment that the vendor has identified as available for having a work order created or submitted. Also included on the screen is Request, a text description of the work order request, W. O. Type, which identifies the type of request, Status showing the status of the work order, information about the person requesting the work order and date of it, P. O. Number which is the purchase order number from the customer and Edit Comments where the user can record vendor-only comments on the work order. Figure

75 shows this screen as Edit Comments Screen of Customer Payments. Figure 76 shows the table of options available on the screen

Figure 77 shows the Payment Detail Screen for Customer Payments which is the work order shown in Figure 73. Figure 78 is a table listing the options such as Paid in Full, Payment Date and Check Number.

### **Create New Work Order**

Figure 79 shows Create New Work Order whereby the vendor can create a new work order on behalf of a customer. This may be necessary if the authorized customer users are not available and a work order must be submitted immediately. Ideally, the customer would call the vendor and request the vendor enter the work order in the authorized user's absence. If this function is used with frequency then the customer should authorize more of its own users.

Figure 80 is the Customer Selection Screen for Create New Work Order which one starts by selecting which customer the work order is being created for. The drop-down menu lists all the customers the vendor has created and allows the vendor to select the customer who is requesting that the work order be created. Figure 81 shows the table of options available to the user which are self-explanatory.

Figure 82 shows the Blank Form Screen for Create New Work Order which displays once the customer has been identified. Each field of the form is discussed in the table of Figure 83. Once the form is completed clicking the submit button will submit the work order; clicking the Return button will return the user to the Main Menu without submitting the work order.

Figure 84 shows the Completed Form Screen for Create New Work Order. It is a sample of a complete New Work Order screen and the explanation of the fields appear in the table of Figure 83.

### **System Information on Main Menu**

Figure 85 shows Action taken at user request Screen on System Information on Main Menu. Whenever the user requests an action the system will display an informational message on the screen. In the case shown, the message indicates that the work order was submitted and provides the work order number.

### **Access Work Orders**

Figure 86 shows the Access Work Order selection which allows the vendor to review all work orders submitted by the vendor's customers. This is a valuable tool in planning the effort for the forthcoming period for any vendor. Figure 87 shows Work Order Screen: Open Work Orders Only which is what the vendor sees when they click the Access Work Order selection on the Main Menu. The screen shows only the open work orders. The vendor can then elect to show closed work orders by clicking on the link to INCLUDE closed work orders. The information will be sorted by clicking on the column headers. Additional clicks on the column headers will reverse the sort to ascending or descending. Figure 88 shows the table of options available including Click to INCLUDE Closed Work Orders, just mentioned, and Description and Page Information.

Figure 89 shows Work Order Screen: Open and Closed Work Orders which the vendor sees by clicking the INCLUDE function. The screen shows only open and closed work orders and the vendor can elect to remove closed work orders by clicking on the link to EXCLUDE closed work orders. The information can be sorted by clicking on the column headers. Additional clicks on the column headers will reverse the sort. Figure 90 shows the table of options available which is self-explanatory

Figure 91 shows the Work Order Screen: Advanced Search function which allows the vendor to search the work order database for work orders that meet certain criteria. It will locate one or more work orders and display them in the same manner as shown in the previous screens. Search criteria can be combined, for example, a search can be done for only customer A looking for work orders with the words “Water Cooler” in the work order description. Figure 92 shows the table of functions available.

Figure 93 shows the Advanced Search Result Screen which is what a search described above would look like. Notice that only work order 8 is listed on the page. Clicking on the WO Number will open that work order for editing.

Figure 94 shows the Work Order Screen for Access Work Order which displays the work order selected in Figure 93. Figure 95 shows the table of options available including Reported Equipment, a pull down list, Request, containing information that will assist in completing the work order, various contact information and Work With Resources which lists resources available to help vendor make and modify assignments.

Figure 96 shows the Work With Resources Screen which allows the user to work with resource scheduling features of the system. This resource scheduling is optional but

is provided to assist vendors in assigning and managing resources. Figure 97 shows the table of functions available which includes Recalculate which recalculates and redisplays the screen with any scheduling notes, Assigned Date indicating date resource was assigned to the job, and Hours, for entering the estimated number of hours the resource will be used on the work order.

Figure 98 shows the Work Order Resource Detail Screen which is what the previously described screen ( Fig. 96 ) would have looked like with the first line filled in and another line added. Figure 99 shows the second line added on the screen. Figure 100 shows the second line added and the screen of figure 96 recalculated.

Figure 101 shows the Updated Work Order Detail Screen showing the updated of the Resource Allocation Detail. Figure 102 shows the Modify Work Order Detail Screen which is a work order about to be modified. Not everyone can see this screen or they may not be able to see all the elements of the screen. What can be seen is determined by the permission granted in the “Work With Employee Logon” screen. Figure 103 shows a table listing the functions available which include the name of the person who submitted the work order, the requested date of completion, added information to assist in completing the work order, the name of the person requesting the

order, the purchase order, the status details, both contract and in-house labor allocated to order and the accompanying rates per hour, the estimated number of hours, the cost of materials, quantity of materials and the ability to recalculate all costs associated with the order on screen.

## Reports

Figure 104 shows the Run Reports which are four (4) reports available from this system. If there is a specific need for a custom report the operator can make it available upon request.

Figure 105 shows the Report Menu for Run Reports and Figure 106 shows the table of functions available which are self explanatory.

Figure 107 shows the Report Period where the vendor will identify a report period by selecting a starting date and ascending date for the report. The system will limit the data output during this period. Figure 108 shows the table with the functions available

Figures 109 through 116 show sample reports which can be generated by this system. Figure 109 shows the Resource Allocation by Employee by Date screen which shows which work orders an employee has been assigned, when the work order was assigned, the status and the other information about the work order. Figure 110 shows

the table of functions accompanying the screen. Figure 111 shows a report for Employee Assigned Hours by Date screen which indicates how many hours of work each employee is assigned each day as well as how many hours each employee has available. This report also indicates if an employee is over-allocated or scheduled for weekend work. Figure 112 shows a table of functions for this screen. Figure 113 shows a report for Number of Customer Work Orders by Date indicating how many work orders were received, the company from which they were received and the date on which they were received. Figure 114 shows a table of functions for the screen of Figure 113. Figure 115 shows the Work Order Dump by Date report which is a dump of the data available on each work order. Figure 116 shows the table of functions on the screen.

## Invoices

Figure 117 shows an e-woms invoice history with a listing of invoices from the system operator to the vendor. Figure 118 shows a Invoice History Screen listing the invoices and Figure 119 shows a table of functions for the screen including the number of invoices processed by the system operator, payment indication for each invoice, and amount paid. Figure 120 shows the Invoice Screen and Figure 121 shows a table of functions associated with the screen.

Having described the preferred embodiment of the invention, it will be obvious to those of ordinary skill in the art to make many changes and modifications without departing from the scope of the appended claims in which.